

## REMARKS/ARGUMENTS

Responsive to the Office Action, Applicant has canceled Claims 1 through 8 and submits with this amendment new Claims 9 through 16. Attention has been paid to drafting proper system claims and method claims, respectively. New Claims 9 through 13 are directed to what are believed to be patentably distinct and related systems and new Claims 14 through 16 are directed to patentably distinct methods in accordance with the present invention. The systems and methods set forth in the claims are believed to be sufficiently related as to not require restriction and consideration for allowance of Claims 9 through 16 is requested for the cogent reasons set forth hereinbelow.

### Claim rejections under 35 USC 102:

Claim 1 and 3-7 were rejected as being anticipated by U. S. Patent application publication no. US/2001/0044768 A1 (Wares). The Examiner refers to Wares disclosing a system for integrating engineering design and procurement; connect buyers, sellers, market places, content providers and additional services. Additionally the Examiner refers to Wares disclosing improving cycle time and productivity using real time data, and providing security measures. Before considering Wares reference in detail, it would be useful to discuss various novel aspects of Applicant's invention as set forth in the claims now presented.

First, a novel method and system for performing engineering design calculations considering market data, which potentially can produce a fundamentally different design of economically higher value than produced by methods of prior art. Further, the combination of market data such as strength, cost and availability of materials can produce a set of designs that meet specific optimization objectives. For example, consider the design and

procurement of pipe for a pipeline or a casing for an oil well. The design of such a pipe involves a number of considerations including fluid flow (such as type of fluid, its density, corrosiveness, and chemical content), desired throughput, velocity, the load (stress) the pipe has to withstand and many others. The engineering calculations are complex, and in the end yield design specifications such as type of steel or alloy, thickness and diameter of the pipe/casing, the strength of materials and tolerances. As described in the prior art these calculations are done first and the specifications are sent to procurement. Market data, such as the strength distribution of various materials from various manufacturers, current costs and availability with a specific period never directly influences the design. By integrating market data in a novel way and by setting engineering and economic objectives, and the coupling of optimization algorithms as set forth in the claims now presented can yield a design that is different from that produced by the prior art, and further be an optimum design offering significant economic advantages.

The second aspect of the invention set forth in the claims now presented is the quantification of risks, particularly equipment failure risks using probabilistic methods and its impact on design. As described in the prior art, the design of equipment such as oil and gas transport pipes, drilling pipes, casing and tubing, the general accepted method is known as the working stress design method. In this method, to describe it simply, the minimum strength of the material considered must exceed the maximum load on the equipment by a safety factor. Of course, the calculation of load distribution is a function of many parameters. This prior art method generally produces an over designed and extremely safe design, which obviously is more expensive and unnecessary. The fundamental reason for using working stress design method is the lack of ability to quantify the failure of risk, which requires

strength distribution from the dynamic market place, and a method and system that performs the complex calculations. In the claims now presented, both load and strength are treated as distribution functions. For a given situation, the load conditions are assessed and a composite load distribution is calculated. The different materials from the market place with different strength distributions are considered. Depending on the level of risk tolerance specified, materials are either qualified or disqualified. The risk of failure multiplied by the cost of failure forms a part of the total cost of the equipment. This then forms one of the parameters of the optimization function.

A third aspect of the invention as set forth in the claims now presented is the integration of optimization techniques to simultaneously consider multiple parameters to optimize a specified objective function. Moreover, the objective can be different for different companies, and or situation. For example, one company may want to optimize the Net Present Value (NPV) of the investment; the other may want to minimize the current expenditure. The objectives can result in two different designs for the same well, while meeting certain minimum risk tolerance.

A fourth novel aspect of the invention is the method of integration of the engineering design calculation modules with procurement systems, be it internal to a company or an external market place, with newly invented feature of collecting material data, probability distributions, costs, and availability data, and then processing them for use in the design and optimization calculations. These algorithms are an inherent part of the invention as set forth in the claims presented herewith.

A fifth novel aspect of the invention is the system, which is the software platform that not only performs all engineering calculations but integrates all

the modules with procurement system modules to create a seamless technology and procurement hub offering a complete and optimized engineering-to-procurement business process supply chain.

With regard to the disclosure and teaching of Wares, the Wares system and application thereof is completely different. Specifically,

Wares is directed to a project management system for the real estate building and construction industry. This project management system is the automation of the manual process where the architect's design drawings are placed on a hub for potential building contractors to bid on the project according to the bid specifications. The bids are then evaluated and a contract awarded to a contractor according to the selection criterion. Documents are managed for viewing and redlining. Projects are tracked and managed on the system. This is nothing but the elimination of a paper process that has been widely used by the real estate building and construction industry. What was previously done by paper design documents and bid proposal by paper fax and mail are now offered on an e-commerce hub. Wares does not disclose or suggest a module or process wherein engineering design calculations are performed. Wares only refers to integrating the processes that involve architects design documents, the process of making these documents available to the contractor online, soliciting bids, receiving bids, etc. The various people (see page 2, paragraph #0012) involved in these processes are in a generic sense termed as buyers, sellers, market places, providers and services. Further Wares does not disclose any fundamental calculation methods or algorithms to facilitate the process or present any alternate outcome that would not have been achieved through the manual paper process. The fundamental distinction of the invention in the claims 9-16 submitted herewith is that it presents a new way of performing engineering design with the integration of

procurement systems and market data, which will produce economically superior results. The claimed invention also integrates engineering to procurement in a more fundamental sense where not only the various business processes are integrated, but also the inherent nature of the processes are changed.

The Examiner references that the Wares system improves cycle-time and productivity using real time data. The improvement in cycle time and productivity of the Wares system comes only through the automation of the manual processes on an e-commerce hub. Further, on page 5, paragraph #0071, Wares discloses only system availability at all times. There is no reference to using real time data. Further, there is no reference to use of real time data in the application for anything. System availability means that the User can access the system at all times. Wares presents system availability at all times with minimal downtime without quantifying the downtime; it could be minutes or hours. The distinction of the present invention as presently claimed in claim 11 is that, in addition to achieving productivity and cycle-time reduction by eliminating manual and paper processes, it achieves improvement of cycle-time and increase in productivity of far greater magnitude by fundamentally affecting the design and procurement process through collaborative engineering and linkage and use of market data. Real time data plays a crucial role in affecting the design and the economic outcome.

The Examiner points to the use of a security system by Wares. Any Internet based web system must have a security system or else it is incomplete. In the prior art, Wares discloses the use of a system supplied by CONVEX software to implement the authentication and validation process. Similar systems are marketed by other vendors such as Microsoft. Wares does not

disclose any specific features, algorithms or modules invented specifically for marking, storing and accessing data. In the claimed invention, the system must have a specifically designed security system where information belonging to various participants are protected and held confidential. For example, the strength of material distribution from the individual manufactures must be tagged by specific security techniques to protect from unauthorized access or loss. In that specific sense, the claimed system, as presented in claim 12, is believed to be patentably different from Wares.

#### Claim rejections under 35 USC 103:

The Examiner rejected Claim 2 as being unpatentable over Wares in view of US Patent No. 4,257,718 (Rosa et al.). The Examiner refers to the abstract of Rosa et al. and mentions that it teaches the use of a computer to calculate pipe design. First of all, there is no mention of pipe design in the Abstract. Studying the entire patent of Rosa et al. it is very clear that there is disclosed an invention for a semi-submersible pipe laying craft. Rosa et al. deals with the actual laying of the pipeline, which has already been designed. The pipe design system being claimed herein provides for the process of determining the actual material to be used, the thickness of the pipe, its diameter, and the coatings. On the other hand, Rosa et al. disclose a new type of craft that would lay the pipe on the ground. The design parameters provided by Rosa et. al are to deal with internal and external ramps for moving the pipe into position. The methods of laying of pipe that Rosa et al. deals with involves collection of data and monitoring on the craft using computers, but they are completely different from the methods and systems of the claims now presented. As in claim 9, prior art does not disclose a project definition module, a hydraulics design module, a pipe mechanical design

module, a dynamic market data connection module, a search and selection module, a results display module and a decision module.


The Examiner rejected Claim 8 as being unpatentable over Wares in view of US Patent No. 6,119,103 (Basch et al.). The Examiner mentions that Basch et al. discloses a system for predicting financial risk. Basch et al. discloses the measurement of financial risk of a financial account, like a credit card account. By collecting and analyzing the transaction data of an account, Basch et al. is able to score the risk of an account holder. Contrary to the teaching of Basch et al., Applicant is claiming the quantification of failure risk using probability distribution functions for physical stresses and the strength of materials. These risks ultimately have an economic impact. For example, let us assume that the risk of failure and blowout of an oil well on an offshore platform is 1%. Further, assume that in the event of a blowout of a well we lose the platform and the cost of loss is \$100Million. Then the current risk weighted cost of the well is the sum of the cost of materials and the drilling of the well plus the cost of failure, which is 1% of \$100million or \$1million. Basch et al. on the other hand are looking at the transaction of an account holder, their payment patterns, defaults, etc to determine a score for the account holder. Then this score is used to make further decisions on the account holder. The prior art of Basch et al. does not disclose a design calculation module for quantifying equipment failure risks, a method for storing and managing such data (claim 15) and a probabilistic design method for determining optimal failure risk weighted economic decisions (Claim16). The methods and systems of Wares, in combination with that of Basch et al. are completely different and unrelated to the invention set forth in the claims10, 15 and 16 now presented.

In view of the foregoing distinctions, it is submitted that the claims now presented are not anticipated nor made obvious by Wares, alone or in combination with

Rosa et al. or Basch et al. It is further submitted that Claims 9 through 16 are in condition for allowance, and an early Notice of Allowance is respectfully solicited. If, however, the Examiner believes that there are unresolved issues, the Examiner is urged to contact the undersigned. A request for a one month extension of time and a check for the extension fee is enclosed herewith.

Respectfully submitted,

Date: 4/5/04

  
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